MANAGEMENT PLAN

FOR

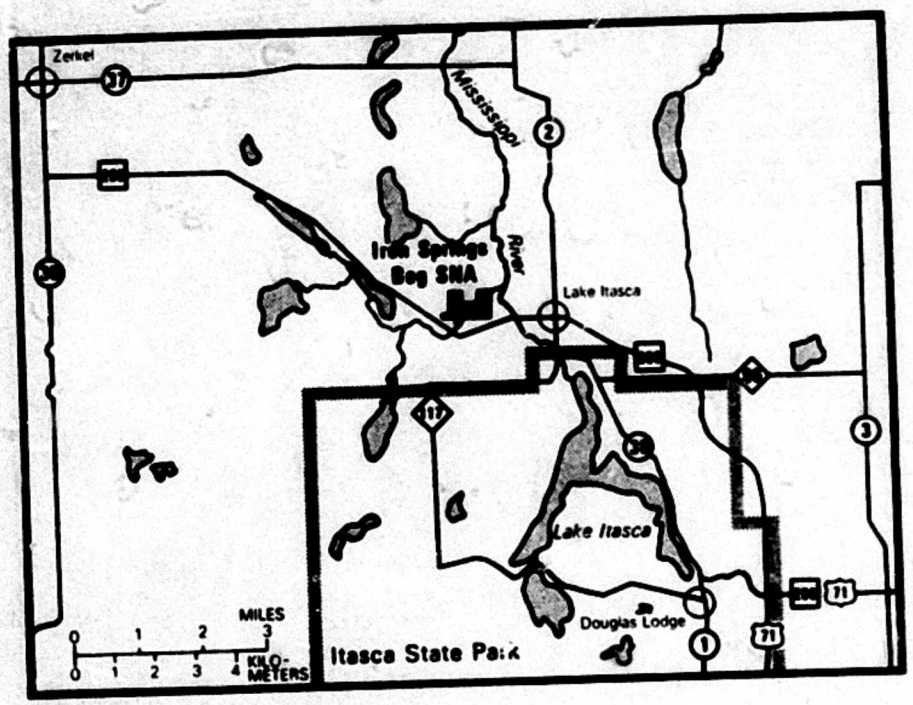
IRON SPRINGS BOG SCIENTIFIC AND NATURAL AREA

Portions of
Sections 28 and 33
Township 144 North, Range 36 West

Itasca Township
Clearwater County
Minnesota

Prepared by
Scientific and Natural Area Program
Section of Wildlife
Minnesota Department of Natural Resources

September 1985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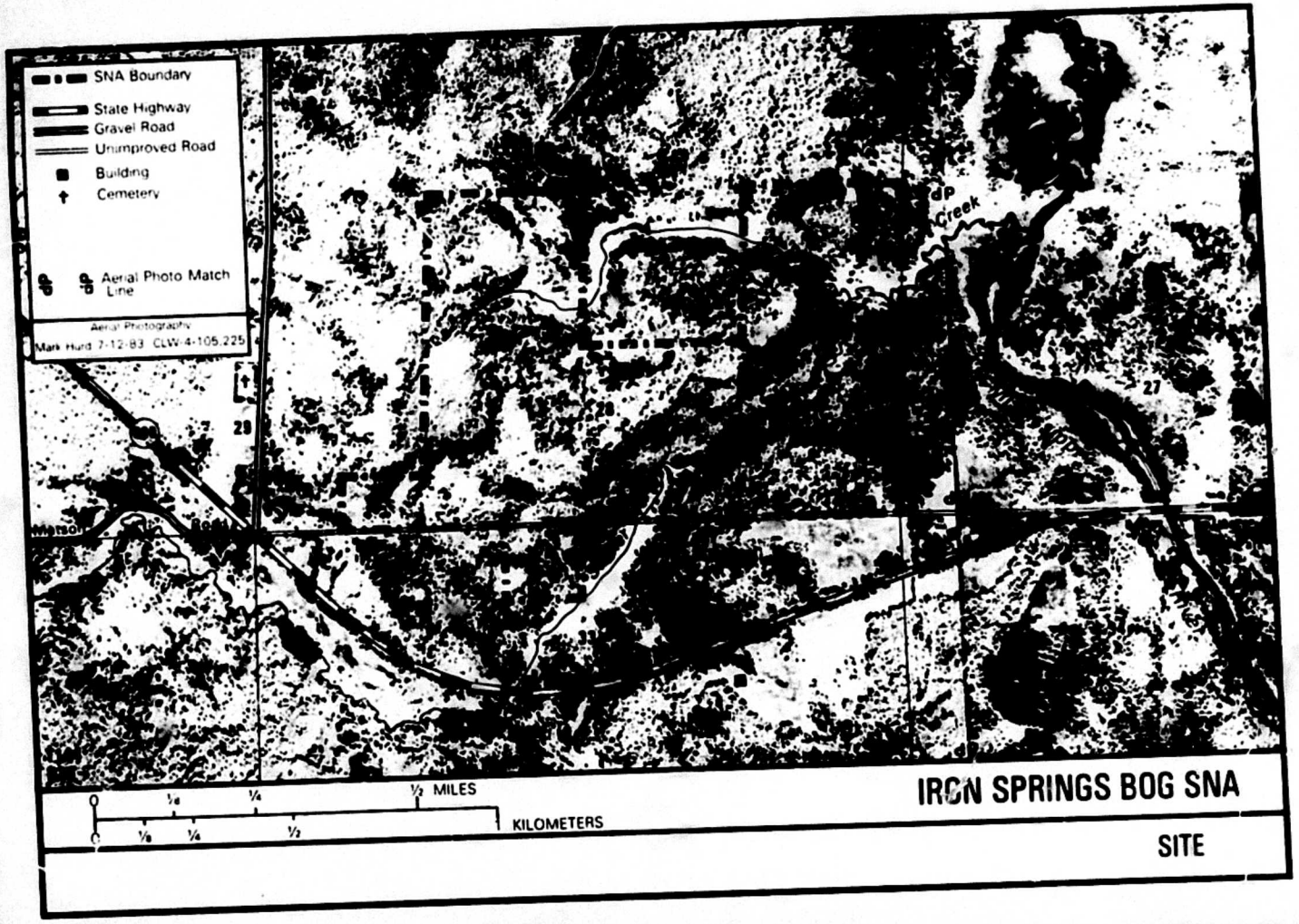
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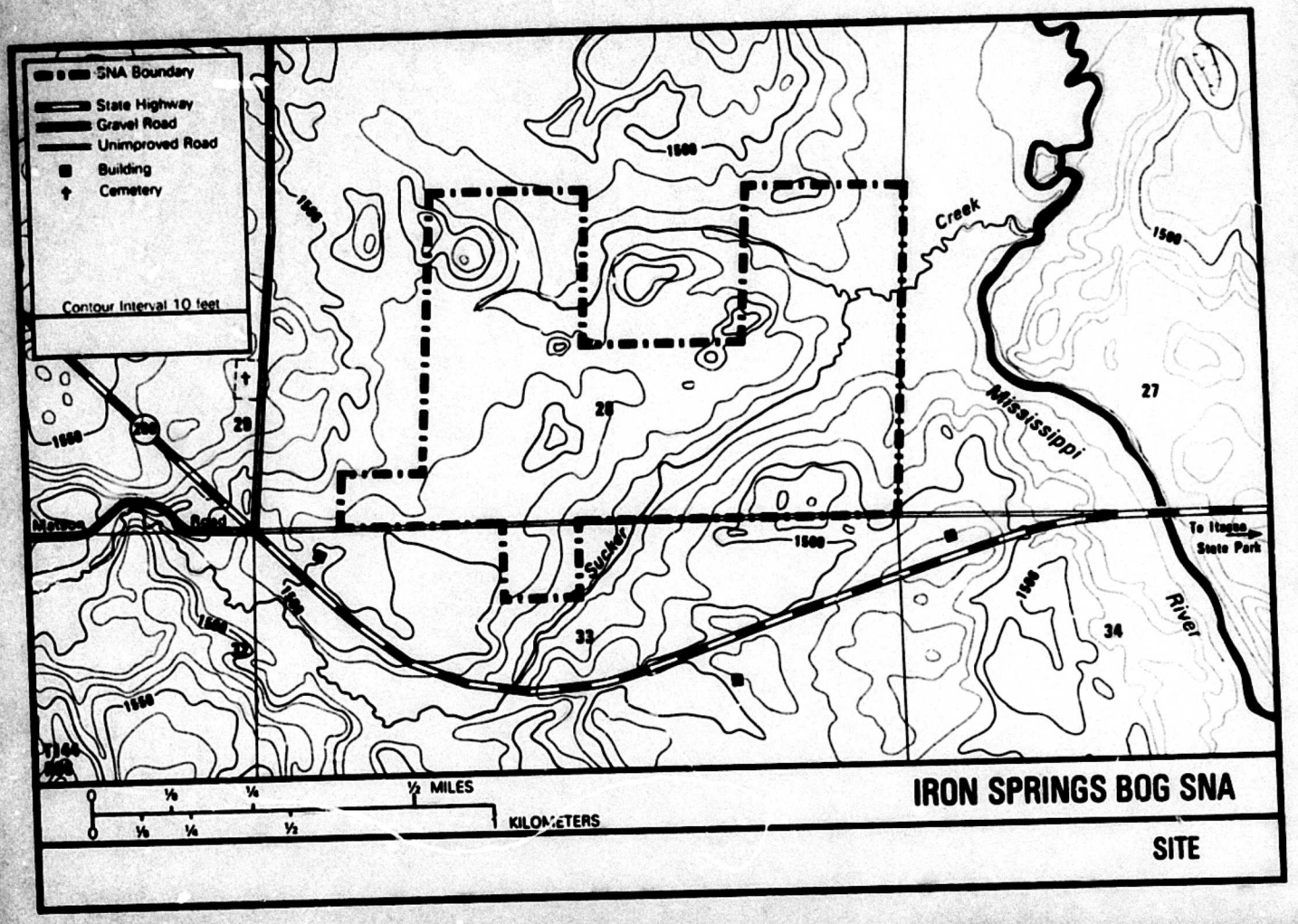
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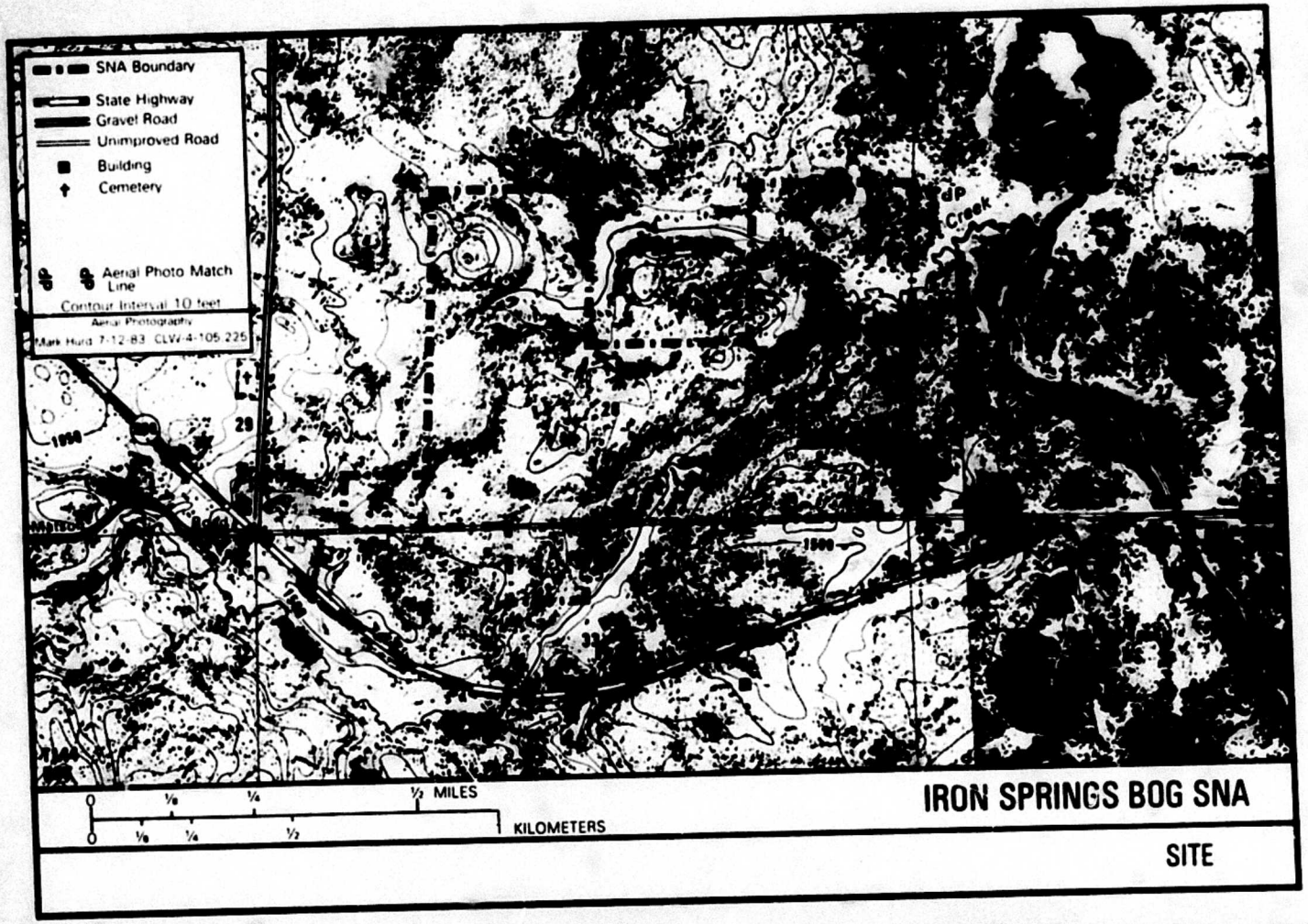
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SITE

This SCIENTIFIC and NATURAL AREA was established to protect and perpetuate Minnesota's rare and unique natural resource for nature observation, education and research.

Principal activities which are UNLAWFUL in the use of this area are listed below. Further information is available at Department of Natural Resources Offices.

. Collecting plants, animals, rocks, or fossils,

. Camping picnicking, and swimming.

. Horses, dogs and other pets.

. Snowmobiles and other motorized vehicles.

. Trapping and boating.

WALK GENTLY

MINNESOTA DEPARTMENT OF NATURAL RESOURCES

PREFACE

Scientific and Natural Areas are established to protect and perpetuate natural features which possess exceptional scientific or educational value. Nominate areas must substantially satisfy a set of rigorously drawn criteria to quality for designation. Scientific and Natural Areas serve many purposes. They are places for the quiet appreciation and study of nature, and serve as outdoor classrooms for teachers. They provide areas against which the effectiveness of resources management techniques employed elsewhere can be evaluated. Scientific and Natural Areas often protect some of the best, remaining occurrences of a rare species or plant community. They also serve as control areas for scientists engaged in furthering our knowledge of natural processes.

However, land control alone does not assure long term preservation of natural areas and their endangered species. Natural areas will decline in quality if they are properly managed. Management of vegetation control of foreign species, and management of visitors are important concerns.

Comprehensive planning is the key to effective and successful management. In 1975, the Minnesota legislature passed the Outdoor Recreation Act (86A), establishing the Outdoor Recreation System. This act directed managing agencies to prepare master plans for units of the system. This document is part of a planning is to coordinate a strategy for stewardship that addressed biological management, obligations of ownership, and visitor management.

This plan was prepared by the Department of Natural Resources, Scientific and Natural Areas Program with the assistance of the Commissioner;s Advisory Committee on Scientific and Natural Areas. It was based on a resource inventory prepared by the Scientific and Natural Areas Program and the Natural Heritage Program. Funding was provided by the Legislature Commission of Minnesota Resources.

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OVERVIEW

A. Description

Iron Springs Bog Scientific and Natural Area (SNA) is located approximately two miles west of the north entrance of Itasca State Park, in Clearwater County. It lies within the Mississippi Headwaters State Forest and the majority of the surrounding lands are county memorial forest. The SNA has long been known for its unusual conifer swamp forest. This peatland feature occupies a seepage slope containing numerous calcareous, iron bearing springs and a unique flora. The SNA encompasses 215 acres and includes conifer swamp forest, pine forest, boreal forest, and marsh/shrub swamp vegetation types. Sucker Creeks, a state designated trout stream, flows through the unit.

Iron Springs Bog SNA has been used extensively by the University of Minnesota Itasca Forestry and Biological Station for research and classroom exercises since at least the 1930's. The station played a key role in getting the site protected. Iron Springs was designated a state scientific and natural area in 1984.

B. Preservation Value

Several highly significant natural features have been identified on the SNA by the DNR's Natural Heritage Program. The Natural Heritage Program maintains the most comprehensive data available on Minnesota's rare plant and animal species, and natural communities. These biological entities (species and communities) are known as "elements" and are ranked according to their endangerment in the state. Iron Springs Box SNA contains at least two rare plant species protected under the Minnesota Endangered Species Act (M.S. 97.488) 5 species proposed for listing, and one significant natural community type.

Plants

1. Rams Head Lady Slipper (Cypripedium arietinum) - state endangered

This species has probably always been rare. Recently, however, it has suffered a general decline to loss of habitat through logging and mining activities. In Minnesota populations of C. arietinum occur in a variety of coniferous forest habitats. Two small populations of this species are known from the SNA. They occur in the sloping conifer swamp forest type.

2. Bog adder's-mouth (Malaxis paludosa) - state endangered

This diminutive plant is often considered the rarest orchid in North America. Three populations are known to exist in Minnesota. These are the only verified locations for the species in the contiguous United States. A single plant was found in Iron Springs Bog SNA in the sloping conifer swamp forest. A large group of 30 plants, first reported in 1927, still exists just south of the SNA boundary in Section 33.

3. Mosses (5 species) - proposed special concern.

Five moss species occurring in the SNA, Calliergo richardsonii, Cratoneuron filicinum, Helodium blandowii, Sphagnum subfulvum, and Sphagnum wulfianum, will be proposed as special concern species in the next review of the Minnesota Endangered Species Act. They were collected in the sloping conifer swamp forest north of Sucker Creek in the SNA.

Plant Communities

1. Conifer Swamp Forest - seepage sl

Conifer swamp forests can be broadly defined as minerotrophic wetlands dominated by coniferous trees, especially black spruce, balsam fir, tamarack, and northern white cedar. Since swamp forests are enriched by mineral bearing groundwater they tend to be floristically more complex than bog forests which are isolated from groundwater flow and are nutrient poor.

The conifer swamp forest-seepage slope vegetation is a variant of the typical conifer swamp community and occupies waterlogged peat soils on the north and south sides of Sucker Creek in the SNA. The peatland contains numerous iron bearing springs and there is a noticeable gradient away from the creek. This vegetation type supports an unusual assortment of fern and bog species floristically distinct from other conifer swamp forest communities. The occurrence of this unique feature with its active springs was a major reason for recognizing Iron Springs Bog as an SNA. The extent of these sloping forested peatlands influenced by groundwater seepage is unknown for Minnesota.

C. ORA Classification

The Iron Springs Bog SNA fully meets the designation criteria for a scientific and natural area as outlined in the Outdoor Recreation Act of 1975 (M.S. 86A.05, Subd 5). The preserve includes (1) natural features which significantly illustrate an undisturbed plant community. (2) habitat supporting the following rare, endangered, or restricted species: Cypripedium arietinum, and Malaxis paludosa, and (3) embraces an area large enough to permit effective research or educational functions and to preserve the inherent natural values of the area.

D. Management Philosophy

The most important natural attributes of the Iron Springs Bog SNA are the sloping conifer swam and its associated rare species. These elements are thought to be dependent on long-term, stable environmental conditions. The primary management goal is to protect these features by preventing disturbance and monitoring the status of the highest priority elements. Additionally, the SNA will continue to serve as a field study site for classroom and research use by the Itasca Forestry and Biological station.

SECTION 1. GENERAL MANAGEMENT CONSIDERATIONS

A. Management Resources

The amount of management that takes place in a SNA depends both on need and on the availability of management resources. The SNA program depends heavily on the cooperation of, and coordination with other DNR programs and divisions, and other agencies and organizations. Some of these resources are described below.

1. DNR offices or facilities

Iron Springs Bog is approximately 30 miles from the Region I Nongame Specialist and Area Wildlife Manager in Bemidji. The Wetland Wildlife Research Group in the Section of Wildlife is also stationed in Bemidji. The DNR Conservation Officer is located in Bagley (25 miles NW of the SNA). The District Forestry Office and Park staff are located approximately 5 miles south of the SNA in Itasca State Park. Iron Springs Bog is 220 miles from St. Paul based SNA staff.

2. Proximity to University and College Campuses

The University of Minnesota Itasca Forestry and Biological Station is located in Itasca State Park. This facility uses Iron Springs Bog SNA extensively for classroom exercises and research projects. Bemidji State University has also done work in the SNA. The SNA program should continue to receive research attention from these and other educational and research institutions.

B. Lake Itasca Forestry and Biological Station

The station has been operated by the University of Minnesota in Itasca State Park since 1909. It offers field courses in biology and forestry, and has an active research program.

Iron Springs Bog has long been used by the station for research and classroom use. Data collected in these studies is reported in student papers, graduate theses, research reports, and published journal articles. The primary collection of these data is at the station library. At present, however, there is no systematic indexing of these data or studies by the SNA unit. The station and the SNA program have a shared benefit in maintaining a well documented, edited and organized data bank on Iron Springs Bog. This maximizes research effort, facilitates classroom use, and provides the basis for sound resource management decisions.

Research projects in Iron Springs Bog SNA require SNA approval and must meet program guidelines. Collecting is generally prohibited, however, certain field courses offered at the station specialize in taxa which have not been adequately surveyed in the SNA. Collecting for these taxa may be allowed by special permit. Use of the SNA for "non-consumptive" classroom exercises is encouraged.

Action 1.1 Improve the documentation and accessibility of data collected from the SNA

Considerations:

Data bank - Designate a central data bank where all investigators will file a copy of information collected on the SNA. To improve accessibility, the SNA program will cooperate with the station library to adequately organize existing studies and data, and establish future data management procedures.

Action 1.2 Allow research and classroom collecting by special use permit

Considerations:

Objective - to acquire data on taxa not adequately surveyed in the SNA.

Permit - A research or collection permit must be obtained from the SNA program. Collections shall be deposited as permanent specimens in a public institution.

Action 1.3 Supply the station with SNA informational materials

Considerations:

Purpose - to increase awareness and appropriate use of the SNA by station staff, researchers and students.

Materials - to include program brochures, site maps, rules and regulations, research and collecting guidelines and other relevant materials.

C. Mississippi Headwaters State Forest

Approximately 90% of the SNA is within the Mississippi Headwaters State Forest. There is one 40 acre trust fund parcel administered by DNR Forestry adjacent to the northwest boundary of the SNA. The Division of Forestry will be preparing a unit forest resource plan for the Bemidji administrative area in the next 205 years. A major objective of that plan will be to coordinate the Division of Forestry's activities with those of other DNR administrative units, other agencies, local governments and the private sector. SNA management and actions in the Iron Springs Bog plan will be considered and coordinated with the Bemidji Area Unit Plan.

D. Wildfire Management

Though fire was once an important ecological factor in this region, its specific relationship to the existing diverse flora and particularly the rare species in Iron Springs Bog is unpredictable. Wildfire suppression has been relatively effective in the Itasca Area since the late 1920's.

Wildfire management is the responsibility of the Division of Forestry. The SNA will be treated as a special fire management unit in the Bemidji Area Fire Plan. Forestry should take immediate action on all wildfires in the SNA using fire crews or aerial support. Mechanical firebreaks (i.e. plowlines and vehicular equipment) can be used on the old public road right-of-way (between Section 28, 33, and 27, 34) and along the perimeter of the SNA. Heavy equipment should not be used in off-road areas as sensitive plants could be irreparably damaged. Under conditions in which Regional Forestry Supervisors determine that a catastrophic fire seems likely, SNA staff should be contacted so that a control strategy can be formulated. Under critical conditions a firebreak could be constructed on mineral soil along an old logging trail running SW to NE in the SNA (See Fire Management Map). This would protect the conifer swamp-seepage slope forest type from fire out of the NW.

Because of groundwater discharge and high water tables, peat fires are unlikely. In such an event the fire will be contained. Trenching must be avoided.

Action 1.4 Include Iron Springs Bog SNA in the Bemidji Area Fire plan as a special fire management unit.

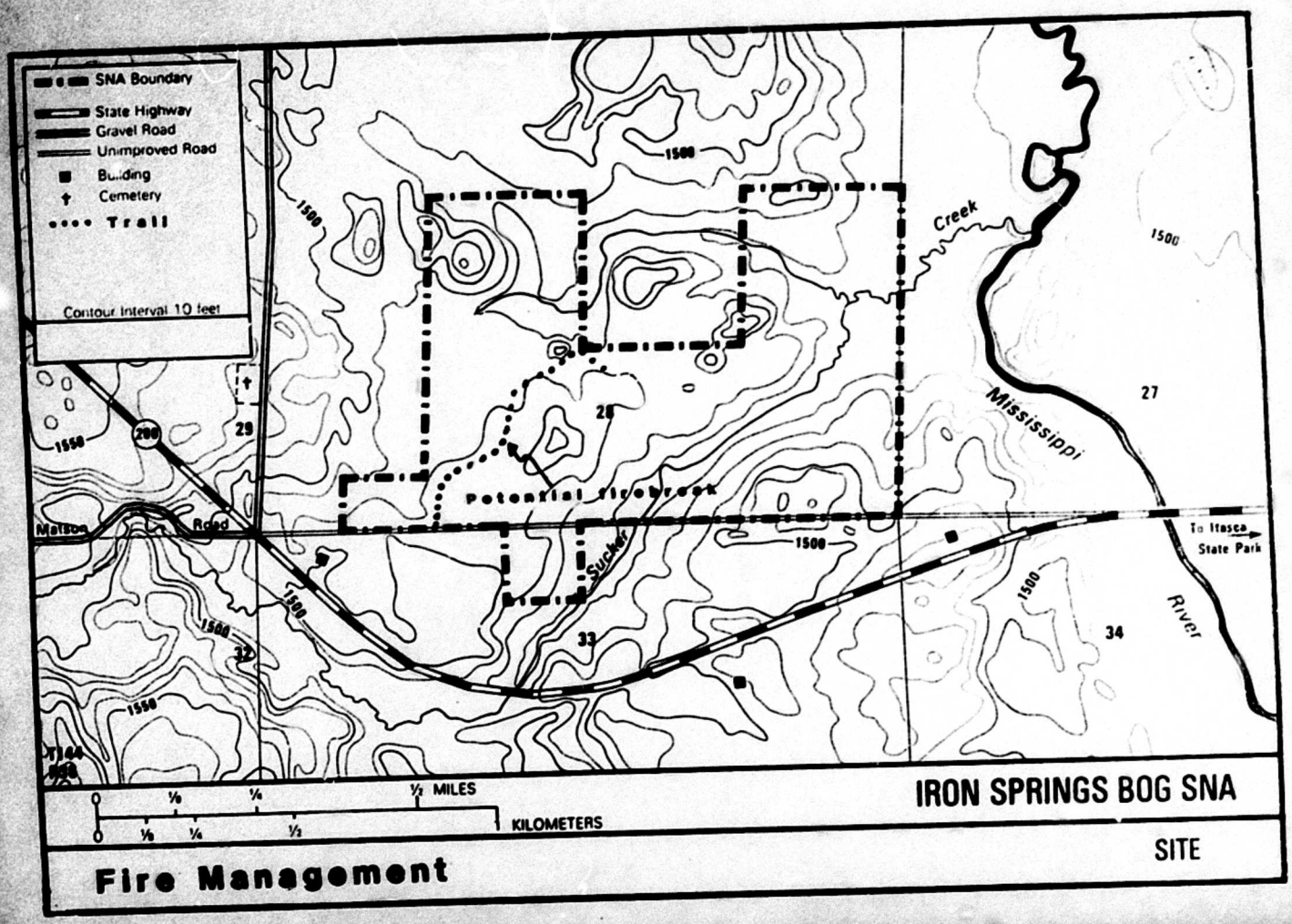
Considerations:

Dispatchers - Will alert fire crews and personnel that this is a sensitive area. Maps and other information will be provided in the Fire Plan.

E. Sucker Creek

Sucker Creek is a state designated trout stream. A portion of the stream reach described as "reach #1" in the 1980, 1982, and 1983 DNR stream surveys goes through Iron Springs Bog SNA. Prior to SNA acquisition and designation, DNR fisheries, acquired corridor easements from Clearwater County for stream improvements along Sucker Creek. Several of these forties were later included in the SNA through a land exchange. The stream easements were conveyed along with the land exchange.

Stream management is the responsibility of the DNR Bemidji Area Fisheries Manager. Stream management activities include: 1) annual stocking with brook trout. 2) removal of beaver dams, 3) cutting of brush for in-stream use, 4) channel clean-out, and 5) construction and maintenance of in-stream structures. Fish stocking, beaver removal, use of brush and channel clean-out do not conflict with SNA management of the adjoining land base. Stream habitat improvement projects that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Building
Cemetery
Trail
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Mississippi
River
Sucker
Potential firebreak
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To Itasca State Park
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IRON SPRINGS BOG SNA
SITE
Fire Management

involve removal or cutting of vegetation outside the streambanks must take into account the rare species and ecological significance of the SNA. Cutting of trees within the SNA is not consistent with the long-term preservation of the adjacent plant community and rare species habitat, and will not be permitted.

Action 1.3 Review stream habitat improvement projects

Considerations:

Scope - to include only those Fisheries projects which might result in an alteration or other disturbance to vegetation, hydrology, soil or other environmental factor outside of the stream banks in the SNA.

Objective - to provide for coordinated and compatible management of the stream and adjoining SNA, maximizing opportunities for both the trout fishery and preservation of the area's natural features.

F. Public Use

1. Rule expectations

In the Commissioner's Order Establishing Iron Springs Bog SNA, exceptions were made to NR 300-303 permitting deer hunting and trout fishing during the regular seasons for such species. Harvesting deer is compatible with SNA management objectives since heavy deer use has a significant impact on the vegetation. Sucker Creek was a designated trout stream prior to SNA designation with easements acquired specifically for stream management. Continued use of the area for these two activities does not appear to have jeopardized any significant natural features in the SNA. Permitting both deer hunting and trout fishing was a condition agreed to in the land exchange with the county. Trapping is prohibited except that DNR Fisheries may control nuisance beaver and remove beaver dams in accordance with the stream corridor easements. The likelihood of beaver activity along the stream segment through the SNA is relatively low. Food resources in the conifer swamp forest along the stream are minimal. Beaver damming and subsequent flooding of the conifer swamp-seepage slope forest would be detrimental to this feature and its associated rare species.

2. Use Levels

The majority of visitors to Iron Springs Bog SNA are students, researchers and faculty from the Itasca Forestry and Biology Station. Most of this use has traditionally occurred west and north of Sucker Creek, in the conifer swamp-seepage slope forest type. This moss dominated ground flora of the conifer swamp-seepage slope forest type is particularly sensitive to damage from visitor use. Classes typical enter the SNA a short distance west of Sucker Creek from the old road. A number of braided footpaths extend out from this general area, decreasing roughly in proportion to distance from there. Fishermen appear to have created a footpath paralleling the creek. Impacts from visitor use are negligible in other vegetation types.

Almost any level of use will result in some impact to this vegetation type. The level of impact caused by educational and scientific use must be balanced against benefits of this use. No real threats or conflicts have been identified between existing use patterns and preservation goals. A non-degradation policy relative to user impact in the conifer swamp-seepage slope forest type will provide for present use and avoid future degradation of resource quality. Increased severity, prevalence and extent of impact will be prohibited. Trails are effective indicators of visitor impact because their size and condition reflect the amount and type of visitor use. If additional degradation occurs, management options, including limiting visitor numbers, restricting use to specific areas, or confining visitors to special trails (i.e. maximizing use of former logging trails) must be initiated.

Action 1.6 Monitor visitor impact

Considerations:

Parameters - the primary indicators of impact will be the number, width, and condition of visitor trails. These should be measured using a series of permanent transects oriented perpendicular to the creek, photo prints, or other replicable procedure.

Evaluation - remeasure every 2 - 4 years and determine whether conditions have changed and if corrective action is necessary.

G. Surveillance and Enforcement

Inappropriate use of overuse can damage natural conditions and preservation efforts in natural areas. Because of the fragility of nature preserves, continued protection and maintenance requires systematic surveillance and eforcement.

Enforcement is the responsibility of DNR enforcement officers and other division staff. Additional protection can be provided by local residents and visitors who support and recognize the values and permitted uses of the SNA. To date, the landowners on the southeast end of the SNA have been extremely helpful in monitoring use of the area. Persons wishing to report problems or who have questions regarding the SNA should contact the Regional Nongame Specialist, Area Wildlife Manager, Conservation officer, or other DNR official.

Deer hunting and trout fishing are permitted in this SNA during the regular seasons for such species. Some unauthorized hunting does occur. Boundary survey and posting will improve compliance and facilitate enforcement (Action 2.2). The construction and use of deer stands is not permitted except that portable tree stands may be used provided they are removed each day and do not permanent damage to trees in which they are placed. Cutting or breaking of branches and other vegetation for the use of deer stands for clearing "shooting lanes" or for any other reason is not permitted. (See action 2.3).

SECTION 2. STRUCTURES AND FACILITIES

A. Access

Access to the SNA is via an old public road segment located along the section line between sections 27 and 34, and sections 28 and 33. This road has been a township road, county road, and state trunk highway. In 1934 and 1935 the State Department of Transportation (DOT) purchased road easements along this road segment from the edge of the then existing right-of-way, out 100' from the centerline of the road. These easements were purchased for highway construction, but the alignment was changed before construction began. A few of the easements were conveyed back to adjoining landowners but most are still owned by DOT.

Present vehicle access on the old public road segment is limited. The road has not been publically maintained for many years. It is passable from the east end to the bridge across Sucker Creek. There is no turnaround. The condition of the bridge has not been evaluated. The western half of the old public road is in poor condition due to seepage from the springs. Other than for emergency vehicles or management activities motorized vehicle use of the road is unnecessary. No road improvements are proposed or desired. The existing public right-of-way (from the SW corner of Section 28, to the SE corner of SW 1/4 of Section 27) provides adequate walk in access for public use. Parking space for 2-3 vehicles is available on the right-of-way where it intersects Hwy. 200 in the SW corner of Section 28.

Action 2.1 Request DOT to transfer road easements within SNA boundaries to DNR

B. Signing

The objectives of signing are to identify the unit its boundaries, and provide basic visitor information. The boundaries of the SNA need to be surveyed and posted. There is presently an entrance sign and rules and regulations sign posted near Sucker Creek. An informational sign and additional rules and regulations signs are needed.

Action 2.2 Survey and post boundaries

Considerations:

Highway Maps - Section corners and other reference points are recorded on the 1934 Highway Construction Maps (on file with DOT and in SNA site files).

Action 2.3 Post 2 additional rules and regulations signs

Considerations:

Location - at SW and SE corners of SNA, where SNA boundary meets old road. These are primary access points into the SNA.

Rule changes - These should be identified on a small aluminum sign posted with the rules and regulations sign and state that: trout fishing and deer hunting are allowed during the regular seasons for these species; and that deer stands are not allowed except that portable three stands may be used provided they are removed each day, and cutting, breaking or otherwise damaging vegetation for the used of these stands or any other purpose is not permitted.

C. Powerline

A Clearwater-Polk County Electric Company Powerline is located on the north side of the old road along the south boundary of the SNA. The electronic company sprayed under the powerline with herbicides in 1984. This is inconsistent with SNA management objectives. In the future the company will use manual methods to control vegetation bodering the SNA. This will be necessary approximately every two years.

Action 2.4 Request Clearwater-Polk County Electric to contact the Region I Nongame Specialist prior to line maintenance within the SNA.

Considerations:

Maintenance - herbicides should not be used. Vegetation should be cut and removed, or burned so that access into the unit is not restricted by debris piles.

SECTION 3. VEGETATION MANAGEMENT

A. Plant Communities

At present, no long-term ecological monitoring is being conducted in the SNA. Data collected from such a monitoring program would:

1) provide a measure of natural variation in an ecosystem and permit an examination of long-term trends and changes.

2) facilitate analyses of ecosystem processes and development of ecological theory, and

3) make possible an accurate assessment of the effects of anthropogenic pollutants

This information is useful for measuring progress towards overall protection goals, and promotes additional educational research interest in the site. Iron Springs Bog is particularity suited for long-term monitoring because of the proximity to the Itasca Forestry and Biological Station, and because the peat effectively preserves a continuous record of environmental change.

The most unique plant community type in the SNA is the conifer swamp-seepage slope forest. This peatland feature with its associated flora has been the primary focus of attention for research and classroom use. The extent and characteristics of this community type have not been systematically surveyed and defined. In addition to vegetation, a better understanding of the local hydrology and ontogeny of the peat is necessary to adequately delineate the ecological boundaries of this natural feature. This information is important in order to evaluate the significance and determine protection needs of those portions of this community which extend beyond present SNA boundaries.

Action 3.1 Describe and delineate the ecological boundaries of the conifer swamp-seepage slope forest

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Considerations:

Purpose - to effectively determine the protection needs and status of this community type both within and outside of existing SNA boundaries.

Action 3.2 Describe and delineate the ecological boundaries of the conifer swamp-seepage slope forest

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Considerations:

Purpose - to effectively determine the protection needs and status of this community type both within and outside of existing SNA boundaries.

a. Hydrology - Identify general or specific relationships between hydrologic parameters, and general or vegetation patterns, composition and quality. Map the extent of these hydrologic/vegetation conditions.

b. Peat - map and describe peat stratigraphy, including depth, degree of humification, botanical origin and composition of each layer of the profile, and the under lying mineral soil texture. Document vegetation change and development in the conifer swamp-seepage slope forest type.

c. Vegetation - evaluate the existing condition of the conifer swamp-seepage slope forest outside the current SNA boundary, particularly in regard to rare species characteristic of this community type.

B. Rare Species

The conservation of endangered, threatened and special concern species is a primary management objective for SNA's. At a minimum, censusing of these species is necessary. The objective will be to document numbers and/or distribution of these species over time. This data will provide the basis for assessing their status and management needs.

At present there are two state species that should be monitored: Cypripedium arietinum and Malaxis paludosa. Both of these occur in only a few known locations in the SNA in low numbers. Both are associated with the conifer swamp-seepage slope forest type. Five moss species collected in the SNA have been proposed for special concern status. The abundance and distribution of these mosses in the SNA has not yet been determined.

Action 3.4 Monitor Cypripedium arietinum and Malaxis paludosa

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Considerations:

Scope - Establish a replicable censusing procedure to permit systematic reverification of the species' status in the SNA.

Additional species - Extend monitoring to the proposed special concern species when listed. Distribution and abundance in the SNA must be determined prior to establishing prior to establishing a monitoring program.

SECTION 4. ADJACENT LANDS

Lands adjacent to Iron Springs Bog SNA may be important to the protection and management of the SNA if:

1. The vegetation is continuous and of a quality similar to that being protected on the SNA.
2. They contain significant natural features.
3. Land use activities would threaten important natural features protected in the SNA.
4. They affect SNA management and/or eforcement capabilities.

In the following section surrounding land parcels with important protection or management features are discussed. Most of the surrounding lands are county memorial forest and managed for timber products. Unless otherwise notes, any issues relating to these county lands will be deferred until the Bemidji Area Forest Unit Plan is prepared by the DNR Division of Forestry and additional resource information is available (See Action 3.2). At that time exchange or other options should be considered for those adjoining county lands in the S 1/2 Section 28 and N 1/2 Section 33 where protection needs have been identified.

PARCEL A - a portion of the E 1/2 NW 1/4 NE 1/4, Section 33

Resources - The westerly portion of this parcel includes part of the conifer swamp-seepage slope forest type. It was clearcut sometime between 1927 and 1939. A major population of Malaxis paludosa occurs in Parcel A, possibly extending into the adjacent countyland towards the creek (Parcel B).

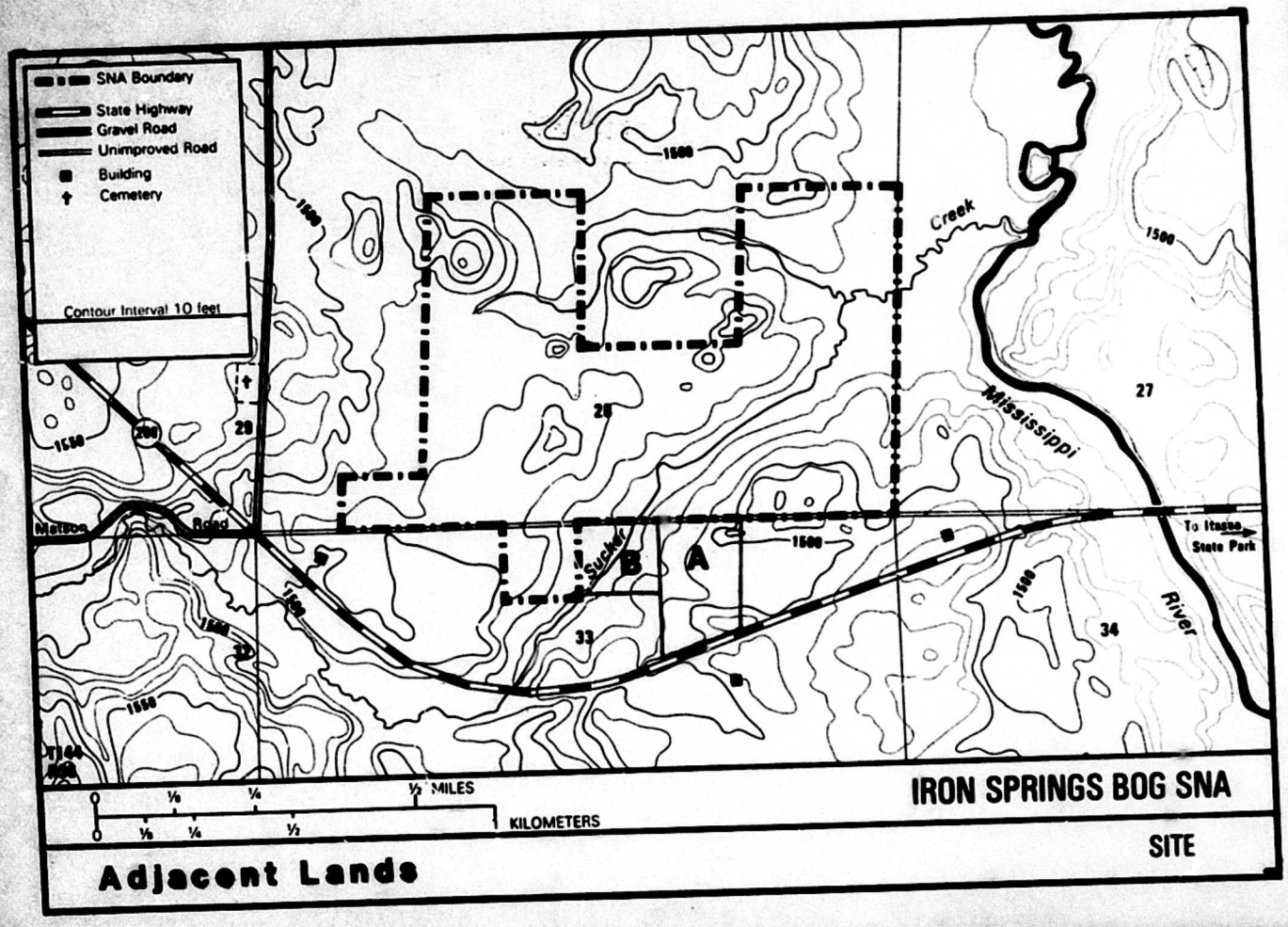
Status - Private ownership. Malaxis paludosa is a protected species under the Minnesota Endangered Species Act.

SNA Considerations - This is a high species for protection and this population is one of the largest known in the United States. Only a single plant was found in the SNA. The plant has been known from this location in Section 33 since 1927.

Action 4.1 Pursue conservation action with landowner on Parcel A

Considerations:

Designation - If the landowner is willing, the SNA program should designate the rare plant habitat in Parcel A as part of the Iron Springs Bog SNA. To designate any land as a SNA, the DNR requires a property interest in the parcel. This could be accomplished through gift exchange, or acquiring fee title, partial ownership (i.e. conservation easement) or long-term lease to the portion of Parcel A containing the rare plant habitat.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SITE
Adjacent Lands

PARCEL B - W 1/2 NW 1/4 NE 1/4, Section 33 - 10 acres

Resources: same as Parcel A

Status: Tax forfeit, designated as county memorial forest. The conifer swamp time type is presently in a reserve status (no harvest in the next 10 years).

SNA Considerations: same as Parcel A

Action 4.2 Pursue conservation action with Clearwater County or Parcel B

Considerations:

Protection - If the county is willing, SNA designation should be pursued. In the interim, Parcel B should be withdrawn from harvesting operations and the DNR should survey and monitor the Malaxis Paludosa population.

SECTION 5. MANAGEMENT COSTS AND IMPLEMENTATION

Actions recommend in this plan have been separated into two categories: (1) administrative and (2) operational. The costs of administrative actions are difficult to itemize because they are included in an SNA staff member's salary.

Operational actions are on-site activities. These often have both capital and labor costs. Capital costs have been listed. Estimates of labor needs are provided where possible.

Administrative and operational actions are often funded out of different budget sources. This makes it difficult to present an implementation schedule that equates both types of actions. To accommodate budget planning, separate implementation schedules are outlines for each category.

It is important, however, to have a mechanism that does allow comparison between all actions in this plan and between actions from different plans. The system outlinespbelow distinguishes between (a) actions needed to improve or maintain the integrity of a site's most important features (called elements). (b) legal or moral obligations of ownership or land management by the Department, and (C) all other actions important for reasons other than above.

Group I Actions: Actions that prevent or reduce the vulnerability of the element to destruction or serious degradation. That is, in the absence of these actions the preservation of the element is threatened on this site. Research, ecological survey and monitoring may be included here if, without such information, it is not known what actions are necessary to maintain the element.

Group II Actions: Actions necessary because they constitute an obligation of land management/ownership by the Department. These may be legal obligations, departmental, or SNA program standard requirements.

Group III Actions: Actions taken for all reasons. For example, actions taken to provide for public use, acquire supplementary resource information, administrative coordination, etc.

The following chart illustrates the scheduling of actions described in the test, and the immediate on-going capital costs of implementation. The scope of this plan covers a ten year period. The plan should be reviewed every five years to evaluate progress, reassess priorities, and refine management techniques. Actions listed under the category "Begin immediately" need immediate attention or a re a continuation of an existing program. "Phase I" is the first five year period. "Phase II" is the second five year period. Implementation of many actions depends on availability of materials, equipment and labor. An action may be initiated sooner than scheduled if circumstances so dictate and earlier schedule actions will not suffer as a result. Under the "comments" column, the DNR unit with the primary responsibility for carrying out the action is noted. The SNA program will secure development funds and prepare annual work plans to schedule and coordinate management activities described in this plan.

ADMINISTRATIVE ACTIONS		Group	Begin Immediately	Phase I	Phase II	Comments
Action 1.4	Include SNA in Area Fire Plan	I	X			FOR
Action 1.5	Review stream habitat improvement projects	I	X	X	X	SNA/F ongoing review
Action 2.4	Request electric company to contact DNR prior line maintenance	I	X			NG
Action 4.1	Pursue conservation action w/landowner - Parcel A	I	X			SNA
Action 4.2	Pursue conservation action w/county - Parcel B	I	X			SNA
Action 1.1	Improve data archiving and accessibility	III		X		UM/SNA
Action 1.2	Allow collecting in SNA by special use permit	III		X		SNA
Action 1.3	Supply Itasca Biology Station with SNA materials	III		X		SNA
Action 2.1	Request DOT to transfer road easements	III			X	SNA

OPERATIONAL ACTIONS						
Action 1.6	Monitor visitor impacts	I			X	SNA
Action 2.1	Establish permanent plots or transects	I			X	SNA
Action 3.2a	Investigate hydrology	I		X		SNA/Request Waters to assist, complete prior to Forest Unit Plan prep.
Action 3.2b	Survey and describe peat soil unit	I		X		SNA/W complete prior to Forest Unit prep.
Action 3.2c	Survey vegetation	I		X		SNA/NHP
Action 3.4	Monitor C. arietinum and M. paludosa	I		X		SNA/NHP
Action 2.2	Survey and post boundaries	II		X		EG/W
Action 2.3	Post 2 rules and regulations signs	II		X		W

SNA = Scientific and Natural Areas
FOR = Forestry
F = Fisheries
NG = Nongame
UM = University of MN Field Biology Program
M = Minerals
EG = Engineering
W = Wildlife